

Connecting via Winsock to STN

Welcome to STN International! Enter x:X

LOGINID:SSPTABAS1623

PASSWORD:

***** RECONNECTED TO STN INTERNATIONAL *****
SESSION RESUMED IN FILE 'HCAPLUS' AT 18:22:59 ON 11 AUG 2009
FILE 'HCAPLUS' ENTERED AT 18:22:59 ON 11 AUG 2009
COPYRIGHT (C) 2009 AMERICAN CHEMICAL SOCIETY (ACS)

COST IN U.S. DOLLARS	ENTRY	SINCE FILE SESSION	TOTAL
FULL ESTIMATED COST		95.37	766.98
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) SINCE FILE			
TOTAL	ENTRY	SESSION	
CA SUBSCRIBER PRICE		-19.68	-103.32

=> d his

(FILE 'HOME' ENTERED AT 15:05:20 ON 11 AUG 2009)

FILE 'REGISTRY' ENTERED AT 15:09:44 ON 11 AUG 2009
E ALPHA-1,4-GLUCAN/CN
E ALPHA-1,4-GLUCAN/CRN
E 1,4-GLUCAN/CN
E GLUCAN/CN
L1 1 S GLUCAN/CN
L2 23 S 9012-72-0/CRN
L3 23 POLYLINK L2

FILE 'CAPLUS' ENTERED AT 15:17:21 ON 11 AUG 2009

FILE 'HCAPLUS' ENTERED AT 15:17:29 ON 11 AUG 2009
L4 236 S L3
E WEIGHT+ALL/CT
L5 28 S ((MOLECULAR (9S) (WEIGHT OR "MASS"))) AND L4)
L6 26 S ((MOLECULAR WEIGHT) OR (MOLECULAR "MASS")) AND L4
L7 465 S ALPHA-1,4-GLUCAN OR A-1,4-GLUCAN OR ?5GLUCAN
E MOLECULAR MASS+ALL/CT

E MOLECULAR WEIGHT+ALL/CT
L8 26 S L6 AND (MOLECULAR WEIGHT OR "MOLWEIGHT" OR
MOLECULAR MASS OR
L9 0 S ?GLUCAN
L10 20054 S (?GLUCAN OR ALPHA-1,4-GLUCAN)

FILE 'REGISTRY' ENTERED AT 15:47:43 ON 11 AUG 2009
E ?GLUCAN?/CN
E ?GLUCAN/CN
E GLUCAN/CN
L11 1 S GLUCAN/CN

FILE 'HCAPLUS' ENTERED AT 15:48:44 ON 11 AUG 2009
L12 3254 S L11
E MOLECULAR MASS+ALL/CT
E MOLECULAR WEIGHT+ALL/CT
L13 338 S L12 AND (MOLECULAR WEIGHT OR "MOLWEIGHT" OR
MOLECULAR MASS OR
L14 20 S L13 AND (DEGREE (L) POLYMER?)
E POLYDISPERSITY+ALL/CT
L15 20 S L13 AND (DEGREE (L) POLYMER?)
L16 2512 S L10 AND (MOLECULAR WEIGHT OR "MOLWEIGHT" OR
MOLECULAR MASS OR
L17 131 S L16 AND (DEGREE (L) POLYMER?)
E MOLECULAR WEIGHT DISTRIBUTION+ALL/CT
L18 18 S L17 AND (MOLECULAR WEIGHT DISTRIBUTION OR
"POLYDISPERSITY" O
L19 1 S L10 AND TAKAHA
L20 0 S L10 AND (TAKAHA OR FUJII OR KURIKI OR KUDO OR WADA OR
SUNAKO
L21 0 S ?GLUCAN AND (TAKAHA OR FUJII OR KURIKI OR KUDO OR
WADA OR SUN
L22 8 S ?GLUCAN AND (TAKAHA OR FUJII OR KURIKI OR KUDO OR
WADA OR SUN
L23 0 S ?GLUCANS AND (TAKAHA/AU)

FILE 'REGISTRY' ENTERED AT 16:23:12 ON 11 AUG 2009
E STARCH/CN
L24 1 S STARCH/CN
L25 2908 S 9005-25-8/CRN
L26 779 S L25 AND 2/NC
E AMYLOSE/CN
L27 1 S AMYLOSE/CN
L28 553 S 9005-82-7/CRN
E AMYLOPECTIN/CN
L29 1 S AMYLOPECTIN/CN

L30 204 S 9037-22-3/CRN
E GLYCOGEN/CN
L31 1 S GLYCOGEN/CN
L32 20 S 9005-79-2/CRN
E PULLULAN/CN
E MALTOTRIOSE/CN
L33 1 S PULLULAN/CN
L34 1 S MALTOTRIOSE/CN

FILE 'HCAPLUS' ENTERED AT 16:26:50 ON 11 AUG 2009

E MOLECULAR MASS+ALL/CT
E MOLECULAR WEIGHT+ALL/CT
E MOL. WT.+ALL/CT
L35 3995 S L24 AND (MOLECULAR WEIGHT OR "MOLWEIGHT" OR
MOLECULAR MASS OR
E MOLECULAR WEIGHT DISTRIBUTION+ALL/CT
L36 345 S L35 AND (MOLECULAR WEIGHT DISTRIBUTION OR "MOL. WT.
DISTRIBU
E POLYMERIZATION+ALL/CT
L37 11 S L36 AND (DEGREE (L) POLYMERIZATION)
E STARCH+ALL/CT
L38 8160 S STARCH AND (MOLECULAR WEIGHT OR "MOLWEIGHT" OR
MOLECULAR MASS
L39 982 S L27 AND (MOLECULAR WEIGHT OR "MOLWEIGHT" OR
MOLECULAR MASS OR
L40 123 S L39 AND (MOLECULAR WEIGHT DISTRIBUTION OR "MOL. WT.
DISTRIBU
L41 10 S L40 AND (DEGREE (L) POLYMERIZATION)
L42 7 S L41 NOT L37
L43 677 S L31 AND (MOLECULAR WEIGHT OR "MOLWEIGHT" OR
MOLECULAR MASS OR
L44 35 S L43 AND (MOLECULAR WEIGHT DISTRIBUTION OR "MOL. WT.
DISTRIBU
L45 0 S L44 AND (DEGREE (L) POLYMERIZATION)
L46 517 S L33 AND (MOLECULAR WEIGHT OR "MOLWEIGHT" OR
MOLECULAR MASS OR
L47 62 S L46 AND (MOLECULAR WEIGHT DISTRIBUTION OR "MOL. WT.
DISTRIBU
L48 1 S L47 AND (DEGREE (L) POLYMERIZATION)
L49 0 S GLUCAN AND TAKAHA/AU
L50 0 S GLUCAN AND FUJII/AU
E GLUCAN+ALL/CT

FILE 'HCAPLUS' ENTERED AT 18:05:14 ON 11 AUG 2009

L51 272260 S (STARCH OR AMYLOSE OR AMYLOPECTIN OR GLYCOGEN
OR PULLULAN OR

E MOLECULAR WEIGHT+ALL/CT
 E MOLECULAR WEIGHT+ALL/CT
 L52 598390 S (MOLECULAR WEIGHT OR "MOLWEIGHT" OR "MOL. WT." OR
 "MOLECULAR
 L53 10381 S L51 AND L52
 E MOLECULAR WEIGHT DISTRIBUTION+ALL/CT
 L54 653 S L53 AND (MOLECULAR WEIGHT DISTRIBUTION OR "MOL. WT.
 DISTRIBU
 L55 24 S L54 AND (DEGREE (L) POLYMERIZATION)

=> d l55 1-24 ibib abs hit

L55 ANSWER 1 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:526142 HCAPLUS

DOCUMENT NUMBER: 147:210442

TITLE: Method for determining the amylose content,
 molecular weights, and weight- and
 molar-based distributions of degree of
 polymerization of amylose and
 fine-structure of amylopectin

AUTHOR(S): Chen, Ming-Hsuan; Bergman, Christine J.

CORPORATE SOURCE: Rice Research Unit, Agricultural Research Service,
 United States Department of Agriculture, Beaumont, TX,
 77713, USA

SOURCE: Carbohydrate Polymers (2007), 69(3), 562-578
 CODEN: CAPOD8; ISSN: 0144-8617

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cooked rice texture and other aspects of rice starch
 functionality are influenced by amylose and amylopectin
 content and structure. A method is described that uses high performance
 size exclusion chromatog. coupled with multiangle laser light scattering
 and refractive index detectors to det. amylose content, mol.
 mass of amylose and the wt.- and molar-based distributions of
 d.p. of amylose and the fine structure of amylopectin.
 The method is relatively rapid with the coeff. of variation less than 5%
 for most aspects of the mol. characterization. It should find utility in
 research programs studying the assocn. between starch mol.
 characteristics and functionality, and in starch-related
 genetics studies of diverse botanical sources.

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE
 THIS RECORD

(1 CITINGS)

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES
 AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- TI Method for determining the amylose content, molecular weights, and weight- and molar-based distributions of degree of polymerization of amylose and fine-structure of amylopectin
- AB Cooked rice texture and other aspects of rice starch functionality are influenced by amylose and amylopectin content and structure. A method is described that uses high performance size exclusion chromatog. coupled with multiangle laser light scattering and refractive index detectors to det. amylose content, mol. mass of amylose and the wt.- and molar-based distributions of d.p. of amylose and the fine structure of amylopectin. The method is relatively rapid with the coeff. of variation less than 5% for most aspects of the mol. characterization. It should find utility in research programs studying the assocn. between starch mol. characteristics and functionality, and in starch-related genetics studies of diverse botanical sources.
- ST amylose amylopectin rice starch size exclusion HPLC
- IT Laser radiation scattering
Molecular weight
Oryza sativa
Polydispersity
Refractive index
Rice
(high performance size exclusion chromatog. for detg. amylose content, mol. wts., and wt.- and molar-based distributions of d.p. of amylose and fine-structure of amylopectin)
- IT High-performance gel-permeation chromatography
(size-exclusion; high performance size exclusion chromatog. for detg. amylose content, mol. wts., and wt.- and molar-based distributions of d.p. of amylose and fine-structure of amylopectin)
- IT 9005-82-7, Amylose 9037-22-3, Amylopectin
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(high performance size exclusion chromatog. for detg. amylose content, mol. wts., and wt.- and molar-based distributions of d.p. of amylose and fine-structure of amylopectin)
- IT 9005-25-8, Starch, biological studies
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(high performance size exclusion chromatog. for detg. amylose content, mol. wts., and wt.- and molar-based distributions of d.p. of amylose and fine-structure of

amylopectin)

L55 ANSWER 2 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:382345 HCAPLUS

DOCUMENT NUMBER: 147:10297

TITLE: Controlled grafting of acetylated starch by
atom transfer radical polymerization of MMA

AUTHOR(S): Nurmi, Leena; Holappa, Susanna; Mikkonen, Hannu;
Seppaelae, Jukka

CORPORATE SOURCE: Laboratory of Polymer Technology, Department of
Chemical Technology, Helsinki University of
Technology, FIN-02015 HUT, Finland

SOURCE: European Polymer Journal (2007), 43(4), 1372-1382
CODEN: EUPJAG; ISSN: 0014-3057

PUBLISHER: Elsevier Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Graft copolymers of acetylated starch oligomer (AS) and poly(Me methacrylate) (PMMA) were polymd. by atom transfer radical polymn . (ATRP). AS was converted to an ATRP macroinitiator by converting a part of the hydroxyl groups of AS to 2-bromoisobutyryl groups. Macroinitiators with varying degrees of substitution for the 2-bromoisobutyryl group were prepd. The polymns. were conducted using CuBr/BiPy catalyst system, either in bulk or in 1:1 vol./vol. THF soln. They proceeded with first-order kinetics and the mol. wts. of the polymers increased linearly with conversion. Graft copolymers with different graft densities and graft lengths were prepd. in a controlled manner. The hydrophobicity of these copolymers was studied by contact angle measurements.

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD

(1 CITINGS)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Controlled grafting of acetylated starch by atom transfer
radical polymerization of MMA

AB Graft copolymers of acetylated starch oligomer (AS) and poly(Me methacrylate) (PMMA) were polymd. by atom transfer radical polymn . (ATRP). AS was converted to an ATRP macroinitiator by converting a part of the hydroxyl groups of AS to 2-bromoisobutyryl groups. Macroinitiators with varying degrees of substitution for the 2-bromoisobutyryl group were prepd. The polymns. were conducted using CuBr/BiPy catalyst system, either in bulk or in 1:1 vol./vol. THF soln. They proceeded with first-order kinetics and the mol. wts. of the polymers increased linearly with conversion. Graft copolymers with

different graft densities and graft lengths were prepd. in a controlled manner. The hydrophobicity of these copolymers was studied by contact angle measurements.

ST methyl methacrylate ATRP graft acetylated starch

IT Polymerization catalysts

(atom transfer, radical, macroinitiator; controlled grafting of acetylated starch by atom transfer radical polymn. of MMA)

IT Polymerization

(atom transfer, radical; controlled grafting of acetylated starch by atom transfer radical polymn. of MMA)

IT Contact angle

Glass transition temperature

Molecular weight

Molecular weight distribution

Polymer chains

(controlled grafting of acetylated starch by atom transfer radical polymn. of MMA)

IT Heating

(effect on surface properties of acetylated starch-MMA graft copolymers)

IT Polymerization

(graft; controlled grafting of acetylated starch by atom transfer radical polymn. of MMA)

IT Polymer degradation

(hydrolytic; controlled grafting of acetylated starch by atom transfer radical polymn. of MMA)

IT Coating process

(spin; controlled grafting of acetylated starch by atom transfer radical polymn. of MMA)

IT 366-18-7, 2,2'-Bipyridine 7787-70-4, Copper bromide (CuBr) 7789-45-9, Copper dibromide

RL: CAT (Catalyst use); USES (Uses)

(controlled grafting of acetylated starch by atom transfer radical polymn. of MMA)

IT 937046-15-6DP, or hydrolyzed

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(controlled grafting of acetylated starch by atom transfer radical polymn. of MMA)

IT 937162-60-2P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(macroinitiator; controlled grafting of acetylated starch by atom transfer radical polymn. of MMA)

ACCESSION NUMBER: 2006:552764 HCAPLUS

DOCUMENT NUMBER: 145:211441

TITLE: Versatile Grafting of Polysaccharides in Homogeneous
Mild Conditions by Using Atom Transfer Radical
Polymerization

AUTHOR(S): Bontempo, Debora; Masci, Giancarlo; De Leonardis,
Piero; Mannina, Luisa; Capitani, Donatella; Crescenzi,
Vittorio

CORPORATE SOURCE: Department of Chemistry, University of Rome La
Sapienza, Rome, 00185, Italy

SOURCE: Biomacromolecules (2006), 7(7), 2154-2161

CODEN: BOMAF6; ISSN: 1525-7797

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A versatile atom transfer radical polymn. (ATRP) method for polysaccharide grafting in homogeneous mild conditions without using protecting group chem. is presented. Water/DMF mixts. with different compns. were used as the solvent. The "grafting-from" approach was used in order to prep. suitable pullulan and dextran ATRP macroinitiators with a well controlled degree of functionalization. Methacrylate and acrylamide monomers were grafted obtaining good control over the no., mol. wt. and polydispersity of the grafted chains without homopolymer formation and polysaccharide degrdn. The versatility of this method allowed us to prep. comblike derivs. with a wide range of properties (amphiphilic, ionic, and thermoresponsive) by simply changing the solvent compn. and the catalyst. This could make possible the synthesis of new interesting biomaterials starting from a wide range of polysaccharides.

OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS

RECORD (14 CITINGS)

REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES
AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB A versatile atom transfer radical polymn. (ATRP) method for polysaccharide grafting in homogeneous mild conditions without using protecting group chem. is presented. Water/DMF mixts. with different compns. were used as the solvent. The "grafting-from" approach was used in order to prep. suitable pullulan and dextran ATRP macroinitiators with a well controlled degree of functionalization. Methacrylate and acrylamide monomers were grafted obtaining good control over the no., mol. wt. and polydispersity of the grafted chains without homopolymer formation and polysaccharide degrdn. The versatility of this method allowed us to prep. comblike derivs. with a wide range of properties (amphiphilic,

ionic, and thermoresponsive) by simply changing the solvent compn. and the catalyst. This could make possible the synthesis of new interesting biomaterials starting from a wide range of polysaccharides.

ST pullulan dextran polysaccharide HEMA graft copolymer ATRP polymn macroinitiator

IT 7623-09-8DP, 2-Chloropropionyl chloride, reaction product with dextran
9004-54-0DP, Dextran, reaction product with 2-chloropropionyl chloride
9057-02-7DP, Pullulan, reaction product with 2-bromoisobutyryl
bromide 20769-85-1DP, 2-Bromoisobutyryl bromide, reaction product with
pullulan 25249-16-5P, 2-Hydroxyethyl methacrylate homopolymer
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)

(ATRP macroinitiator; versatile grafting of polysaccharides in
homogeneous mild conditions by using atom transfer radical polymn.)

IT 446301-12-8P, Dextran-N-isopropylacrylamide graft copolymer
905264-79-1DP, 2-Hydroxyethyl methacrylate-pullulan graft
copolymer, hydrolyzed 905264-79-1P, 2-Hydroxyethyl methacrylate-
pullulan graft copolymer 905264-80-4DP, Pullulan
-methyl methacrylate graft copolymer, hydrolyzed 905264-81-5DP,
Pullulan-3-sulfopropyl methacrylate sodium salt graft copolymer,
hydrolyzed
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(versatile grafting of polysaccharides in homogeneous mild conditions
by using atom transfer radical polymn.)

L55 ANSWER 4 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:1271547 HCAPLUS

DOCUMENT NUMBER: 144:127747

TITLE: Maltogenic amylase has a non-typical impact on the
molecular and rheological properties of starch

AUTHOR(S): Leman, Pedro; Goesaert, Hans; Vandeputte, Greet E.;
Lagrain, Bert; Delcour, Jan A.

CORPORATE SOURCE: Laboratory of Food Chemistry, Katholieke Universiteit
Leuven, Louvain, B-3001, Belg.

SOURCE: Carbohydrate Polymers (2005), 62(3), 205-213
CODEN: CAPOD8; ISSN: 0144-8617

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effects of different amylases on the rapid visco anal. rheol.
properties of starch were studied and the accompanying changes
in the starch mol. properties were analyzed with high
performance size exclusion chromatog. Different amylases affect the
rheol. properties of starch slurries and the mol.
wt. of the starch mols. to a degree depending
on their mode of action and properties such as thermostability.

Endo-amylases generally reduced the viscosity and the amylose and amylopectin mol. wt. (MW) whereas an exo-amylase had little effect. In contrast, a maltogenic amylase from *Bacillus stearothermophilus* had a markedly different effect on the rheol. and mol. properties of starch. Remarkably, the cold paste viscosity (CPV) exceeded that of the control slurry even at high enzyme dosages. Furthermore, this enzyme specifically affected the amylose population, which gained in monodispersity while largely maintaining its MW. In addn., an interesting relationship between CPV and amylose peak degree of polymn. was found.

These results may contribute to a better understanding of amylase functionality in bread making.

OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS

RECORD (10 CITINGS)

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Maltogenic amylase has a non-typical impact on the molecular and rheological properties of starch

AB The effects of different amylases on the rapid visco anal. rheol. properties of starch were studied and the accompanying changes in the starch mol. properties were analyzed with high performance size exclusion chromatog. Different amylases affect the rheol. properties of starch slurries and the mol. wt. of the starch mols. to a degree depending on their mode of action and properties such as thermostability. Endo-amylases generally reduced the viscosity and the amylose and amylopectin mol. wt. (MW) whereas an exo-amylase had little effect. In contrast, a maltogenic amylase from *Bacillus stearothermophilus* had a markedly different effect on the rheol. and mol. properties of starch. Remarkably, the cold paste viscosity (CPV) exceeded that of the control slurry even at high enzyme dosages. Furthermore, this enzyme specifically affected the amylose population, which gained in monodispersity while largely maintaining its MW. In addn., an interesting relationship between CPV and amylose peak degree of polymn. was found. These results may contribute to a better understanding of amylase functionality in bread making.

ST starch amylase thermal stability viscosity rheol

IT *Aspergillus oryzae*

Bacillus licheniformis

Bacillus subtilis

Food rheology

Food viscosity

Geobacillus stearothermophilus

- Ipomoea batatas
Polydispersity
Thermal stability
(maltogenic amylase impact on mol. and rheol. properties of starch)
- IT Pancreas
(porcine; maltogenic amylase impact on mol. and rheol. properties of starch)
- IT 9005-25-8, Starch, biological studies
RL: BCP (Biochemical process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(maltogenic amylase impact on mol. and rheol. properties of starch)
- IT 9005-82-7, Amylose 9037-22-3, Amylopectin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(maltogenic amylase impact on mol. and rheol. properties of starch)
- IT 9000-90-2, EC 3.2.1.1 9000-91-3, EC 3.2.1.2 160611-47-2, EC 3.2.1.133
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(maltogenic amylase impact on mol. and rheol. properties of starch)

L55 ANSWER 5 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:412019 HCAPLUS

DOCUMENT NUMBER: 143:171557

TITLE: Enzyme and acid resistance of amylose-lipid
complexes differing in amylose chain length,
lipid and complexation temperature

AUTHOR(S): Gelders, Greta G.; Duyck, Jeroen P.; Goesaert, Hans;
Delcour, Jan A.

CORPORATE SOURCE: Laboratory of Food Chemistry, Department of Food and
Microbial Technology, Katholieke Universiteit Leuven,
Louvain, B-3001, Belg.

SOURCE: Carbohydrate Polymers (2005), 60(3), 379-389

CODEN: CAPOD8; ISSN: 0144-8617

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB To study parameters that influence enzyme and acid resistance of amylose-lipid complexes, complexes were formed between amylose of different av. chain lengths [Degree of Polymn. (DP); DP60, 400, 950] and docosanoic acid (C22) or glyceryl monostearate (GMS) at 60 or 90.degree.. Complexes were hydrolyzed with hog pancreatic alpha-amylase or acid (2.2 N HCl). DP400- and DP950-complexes were of type I when formed at 60.degree. and of type II when formed at 90.degree.. Enzyme and acid

resistance increased with increasing amylose DP, lipid chain length and complexation temp. DP60 yielded only type I complexes, independent of the complexation temp. Enzymic and acid hydrolysis of all complexes gave rise to two or more dextrin subpopulations, which are interpreted to originate from a sequence of lamellar units (the smallest peak DP) with interconnecting, amorphous amylose chains. The peak DP of such lamellar unit increased with increasing amylose DP and complexation temp., but remained const. when higher enzyme dosages were applied. Synthesis of amylose-lipid complexes from amylose and lipids of variable structure under variable temp. conditions followed by hydrolysis can yield dextrin populations of defined and relatively narrow mol. wt. distributions.

OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD

(9 CITINGS)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Enzyme and acid resistance of amylose-lipid complexes differing in amylose chain length, lipid and complexation temperature

AB To study parameters that influence enzyme and acid resistance of amylose-lipid complexes, complexes were formed between amylose of different av. chain lengths [Degree of Polymn. (DP); DP60, 400, 950] and docosanoic acid (C22) or glyceryl monostearate (GMS) at 60 or 90.degree.. Complexes were hydrolyzed with hog pancreatic alpha-amylase or acid (2.2 N HCl). DP400- and DP950-complexes were of type I when formed at 60.degree. and of type II when formed at 90.degree.. Enzyme and acid resistance increased with increasing amylose DP, lipid chain length and complexation temp. DP60 yielded only type I complexes, independent of the complexation temp. Enzymic and acid hydrolysis of all complexes gave rise to two or more dextrin subpopulations, which are interpreted to originate from a sequence of lamellar units (the smallest peak DP) with interconnecting, amorphous amylose chains. The peak DP of such lamellar unit increased with increasing amylose DP and complexation temp., but remained const. when higher enzyme dosages were applied. Synthesis of amylose-lipid complexes from amylose and lipids of variable structure under variable temp. conditions followed by hydrolysis can yield dextrin populations of defined and relatively narrow mol. wt. distributions.

ST amylose lipid enzyme acid hydrolysis

IT Hydrolysis

(acid; enzyme and acid resistance of amylose-lipid complexes differing in amylose chain length, lipid and complexation

temp.)

IT Hydrolysis

(enzymic; enzyme and acid resistance of amylose-lipid complexes differing in amylose chain length, lipid and complexation temp.)

IT 112-85-6D, Docosanoic acid, complexes with amylose 7647-01-0, Hydrogen chloride, biological studies 9000-90-2, EC 3.2.1.1 9005-82-7D, Amylose, complexes with docosanoic acid or glyceryl monostearate 31566-31-1D, Glyceryl monostearate, complexes with amylose

RL: BSU (Biological study, unclassified); BIOL (Biological study) (enzyme and acid resistance of amylose-lipid complexes differing in amylose chain length, lipid and complexation temp.)

L55 ANSWER 6 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:498794 HCAPLUS

DOCUMENT NUMBER: 141:367568

TITLE: Amylose-lipid complexation: a new fractionation method

AUTHOR(S): Gelders, G. G.; Vanderstukken, T. C.; Goesaert, H.; Delcour, J. A.

CORPORATE SOURCE: Laboratory of Food Chemistry, Katholieke Universiteit Leuven, Louvain, B-3001, Belg.

SOURCE: Carbohydrate Polymers (2004), 56(4), 447-458
CODEN: CAPOD8; ISSN: 0144-8617

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Amylose fractions of different peak Degree of Polymn. (DP) (DP20, DP60, DP400, DP950) were complexed with docosanoic acid (C22) and glyceryl monostearate (GMS, Dimodan PVP) at 60 and 90.degree.C. Complexation yields, relative crystallinities, dissocn. temps. and enthalpies increased with amylose chain lengths (DP20-DP60-DP400). Relative crystallinities and thermal stabilities of the DP950-complexes were slightly lower than those of the other amylose fractions, probably due to increased conformational disorders, resulting in crystal defaults. Mol. wt. distributions of the complexes revealed that, irresp. to the complexation temp., the crit. DP for complex formation and pptn. was 35 and 40 for complexes with GMS and C22, resp., corresponding to the length needed to accommodate two GMS- or C22-mols. within an amylose helix. Complexation of dextrans with a well-chosen lipid, allows to sep. starch derived dextrans with a predictable crit. chain length as border. Dextrans, of sufficient DP will complex and ppt., while the

shorter dextrans will remain in soln.

OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS

RECORD (12 CITINGS)

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Amylose-lipid complexation: a new fractionation method

AB Amylose fractions of different peak Degree of

Polymn. (DP) (DP20, DP60, DP400, DP950) were complexed with docosanoic acid (C22) and glyceryl monostearate (GMS, Dimodan PVP) at 60 and 90.degree.C. Complexation yields, relative crystallinities, dissocn. temps. and enthalpies increased with amylose chain lengths (DP20-DP60-DP400). Relative crystallinities and thermal stabilities of the DP950-complexes were slightly lower than those of the other amylose fractions, probably due to increased conformational disorders, resulting in crystal defaults. Mol. wt. distributions of the complexes revealed that, irresp. to the complexation temp., the crit. DP for complex formation and pptn. was 35 and 40 for complexes with GMS and C22, resp., corresponding to the length needed to accommodate two GMS- or C22-mols. within an amylose helix. Complexation of dextrans with a well-chosen lipid, allows to sep. starch derived dextrans with a predictable crit. chain length as border. Dextrans, of sufficient DP will complex and ppt., while the shorter dextrans will remain in soln.

ST amylose polymn degree fractionation lipid

complexation; glycerol monostearate complexation amylose fractionation; docosanoic acid complexation amylose fractionation

IT Monoglycerides

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (C16-18, Dimodan PVP, complexes with amylose; amylose -lipid complexation as a new fractionation method)

IT Fractionation

Molecular weight distribution

Polydispersity

(amylose-lipid complexation as a new fractionation method)

IT Crystallinity

(crystallinity of amylose-lipid complexes in relation to amylose-lipid complexation as a new fractionation method)

IT Dissociation

(dissocn. temp. of amylose-lipid complexes in relation to amylose-lipid complexation as a new fractionation method)

IT Dissociation enthalpy

(heat of dissocn. of amylose-lipid complexes in relation to

amylose-lipid complexation as a new fractionation method)
 IT Thermal stability
 (of amylose-lipid complexes in relation to amylose
 -lipid complexation as a new fractionation method)
 IT 9005-82-7DP, Amylose, complexes with Dimodan PVP 778599-55-6P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (amylose-lipid complexation as a new fractionation method)

L55 ANSWER 7 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:511381 HCAPLUS

DOCUMENT NUMBER: 139:86539

TITLE: Elastomeric compositions comprising halogenated
 terpolymers of isoolefin, multiolefin and
 p-alkylstyrene

INVENTOR(S): Waddell, Walter H.; Chung, David Y.

PATENT ASSIGNEE(S): Exxonmobil Chemical Patents Inc., USA

SOURCE: PCT Int. Appl., 69 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003054032	A1	20030703	WO 2002-US39363	20021209
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2468636	A1	20030703	CA 2002-2468636	20021209
AU 2002353093	A1	20030709	AU 2002-353093	20021209
EP 1463763	A1	20041006	EP 2002-790068	20021209
EP 1463763	B1	20090415		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CN 1602320	A	20050330	CN 2002-824597	20021209
JP 2005529981	T	20051006	JP 2003-554745	20021209
RU 2327578	C2	20080627	RU 2004-121163	20021209
AT 428734	T	20090515	AT 2002-790068	20021209

US 20040242795 A1 20041202 US 2004-494994 20040510
US 7241831 B2 20070710
IN 2004DN01332 A 20070209 IN 2004-DN1332 20040518
PRIORITY APPLN. INFO.: US 2001-339966P P 20011210
US 2002-381326P P 20020517
WO 2002-US39363 W 20021209

OTHER SOURCE(S): MARPAT 139:86539

AB A cured elastomeric compn. comprises a halogenated terpolymer of C4-C8-isoolefin derived units, C4-C14-multiolefin derived units, and p-alkylstyrene derived units, the compn. being cured in the presence of a sulfur cure system, and adhesion to SBR at 100.degree. of the cured compn. being > 70 N/mm. A tire innerliner is made by combining a filler, a sulfur cure system, optionally at least one secondary rubber, and at least one halogenated terpolymer of C4-C8-isoolefin derived units, C4-C14-multiolefin derived units, and p-alkylstyrene derived units. The terpolymer is produced in a solvent having a dielec. const. > 6 at 20. degree., the polymn. being carried out in the presence of a Lewis acid and at least one initiator. Thus, isobutylene-isoprene-p-methylstyrene copolymer having wt.-av. mol . wt. of 250,500 and polydispersity of 2.73 was produced by cationic polymn. in chloromethane at -93. degree. in the presence of ethylaluminum dichloride and tert-Bu chloride. The elastomer was obtained by bromination of isobutylene-isoprene-p-methylstyrene copolymer in cyclohexane, the bromination level being 0.80% mol in the backbone and 0.06% mol on the p-methylstyrene units.

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD

(1 CITINGS)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB A cured elastomeric compn. comprises a halogenated terpolymer of C4-C8-isoolefin derived units, C4-C14-multiolefin derived units, and p-alkylstyrene derived units, the compn. being cured in the presence of a sulfur cure system, and adhesion to SBR at 100.degree. of the cured compn. being > 70 N/mm. A tire innerliner is made by combining a filler, a sulfur cure system, optionally at least one secondary rubber, and at least one halogenated terpolymer of C4-C8-isoolefin derived units, C4-C14-multiolefin derived units, and p-alkylstyrene derived units. The terpolymer is produced in a solvent having a dielec. const. > 6 at 20. degree., the polymn. being carried out in the presence of a Lewis acid and at least one initiator. Thus, isobutylene-isoprene-p-methylstyrene copolymer having wt.-av. mol . wt. of 250,500 and polydispersity of 2.73 was produced by cationic polymn. in chloromethane at -93.

degree. in the presence of ethylaluminum dichloride and tert-Bu chloride. The elastomer was obtained by bromination of isobutylene-isoprene-p-methylstyrene copolymer in cyclohexane, the bromination level being 0.80% mol in the backbone and 0.06% mol on the p-methylstyrene units.

IT 471-34-1, Calcium carbonate, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 9005-25-8, Starch, uses 13463-67-7, Titanium dioxide, uses 14807-96-6, Talc, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(filler; elastomeric compns. comprising brominated isobutylene-isoprene-p-methylstyrene terpolymers)

L55 ANSWER 8 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:472552 HCAPLUS

DOCUMENT NUMBER: 139:54158

TITLE: Elastomeric compositions based on terpolymers of isoolefin, multiolefin and p-alkylstyrene

INVENTOR(S): Waddell, Walter H.; Chung, David Y.

PATENT ASSIGNEE(S): Exxonmobil Chemical Patents Inc., USA

SOURCE: PCT Int. Appl., 64 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 2003050171	A2	20030619	WO 2002-US39433	20021209
WO 2003050171	A3	20040115		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2467920	A1	20030619	CA 2002-2467920	20021209
AU 2002362122	A1	20030623	AU 2002-362122	20021209
EP 1465948	A2	20041013	EP 2002-797256	20021209
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CN 1604936	A	20050406	CN 2002-824571	20021209

JP 2005513178 T 20050512 JP 2003-551193 20021209
RU 2319716 C2 20080320 RU 2004-121167 20021209
US 20040242731 A1 20041202 US 2004-494993 20040510
US 7329697 B2 20080212
IN 2004DN01334 A 20070316 IN 2004-DN1334 20040518
PRIORITY APPLN. INFO.: US 2001-339966P P 20011210
WO 2002-US39433 W 20021209

OTHER SOURCE(S): MARPAT 139:54158

AB An elastomeric compn. comprises a filler, a sulfur cure system, at least one secondary rubber, and at least one halogenated terpolymer comprising C4-C8-isoolefin derived units, C4-C14-multiolefin derived units, and p-alkylstyrene derived units. The fillers include carbon black, silica, alumina, calcium carbonate, and clays. The compns. are suitable for prodn. of tire treads or sidewalls and other articles where abrasion resistance and flexibility are desirable. A method for producing an elastomeric terpolymer comprises combining in a diluent C4-C8-isoolefin monomers, C4-C14-multiolefin monomers, and p-alkylstyrene monomers in the presence of a Lewis acid and at least one initiator. The initiators include halogenated org. compds., esp. secondary or tertiary halogenated compds., such as tert-Bu chloride, 2-chloro-2,4,4-trimethylpentane, 2-bromo-2,4,4-trimethylpentane, cumyl chloride, and 1,4-bis(2-chloro-2-propyl)benzene. Thus, isobutylene-isoprene-p-methylstyrene copolymer having no.-av. mol . wt. of 91,600 and polydispersity of 2.73 was produced by cationic polymn. in chloromethane at -93. degree. for 20.8 min using tert-Bu chloride and ethylaluminum dichloride initiating system, monomer conversion being 64.7%. The isobutylene-isoprene-p-methylstyrene copolymer was effectively cured/vulcanized in the presence of a cure system comprising sulfur (0.8), a brominated phenolic resin (SP 1055) (3), zinc oxide (2), stearic acid (1), and N-tert-butyl-2-benzothiazolesulfenamide (1.2 phr).

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD

(2 CITINGS)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB An elastomeric compn. comprises a filler, a sulfur cure system, at least one secondary rubber, and at least one halogenated terpolymer comprising C4-C8-isoolefin derived units, C4-C14-multiolefin derived units, and p-alkylstyrene derived units. The fillers include carbon black, silica, alumina, calcium carbonate, and clays. The compns. are suitable for prodn. of tire treads or sidewalls and other articles where abrasion resistance and flexibility are desirable. A method for producing an elastomeric terpolymer comprises combining in a diluent C4-C8-isoolefin monomers, C4-C14-multiolefin monomers, and p-alkylstyrene monomers in the

presence of a Lewis acid and at least one initiator. The initiators include halogenated org. compds., esp. secondary or tertiary halogenated compds., such as tert-Bu chloride, 2-chloro-2,4,4-trimethylpentane, 2-bromo-2,4,4-trimethylpentane, cumyl chloride, and 1,4-bis(2-chloro-2-propyl)benzene. Thus, isobutylene-isoprene-p-methylstyrene copolymer having no.-av. mol . wt. of 91,600 and polydispersity of 2.73 was produced by cationic polymn. in chloromethane at -93. degree. for 20.8 min using tert-Bu chloride and ethylaluminum dichloride initiating system, monomer conversion being 64.7%. The isobutylene-isoprene-p-methylstyrene copolymer was effectively cured/vulcanized in the presence of a cure system comprising sulfur (0.8), a brominated phenolic resin (SP 1055) (3), zinc oxide (2), stearic acid (1), and N-tert-butyl-2-benzothiazolesulfenamide (1.2 phr).

IT 471-34-1, Calcium carbonate, uses 1344-28-1, Alumina, uses 7631-86-9, Zeosil 1165MP, uses 9005-25-8, Starch, uses 13463-67-7, Titania, uses 14807-96-6, Talc, uses 221158-20-9, X 50S

RL: TEM (Technical or engineered material use); USES (Uses) (filler; elastomeric compns. based on isobutylene-isoprene-p-methylstyrene terpolymer)

L55 ANSWER 9 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:488160 HCAPLUS

DOCUMENT NUMBER: 137:52350

TITLE: Nucleic acid delivery

INVENTOR(S): Conroy, Susan E.; Engler, Heidrun; Maneval, Daniel C.

PATENT ASSIGNEE(S): UK

SOURCE: U.S. Pat. Appl. Publ., 16 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20020081736	A1	20020627	US 2001-3494	20011101
US 20050014259	A1	20050120	US 2004-913567	20040806
US 7094583	B2	20060822		
US 20070009485	A1	20070111	US 2006-442653	20060525
US 7462351	B2	20081209		
PRIORITY APPLN. INFO.:			US 2000-245539P	P 20001103
			US 2001-287871P	P 20010430
			US 2001-3494	A1 20011101
			US 2004-913567	A1 20040806

AB The present invention provides formulations and methods to enhance the

delivery of nucleic acids to cells. Formulations comprising dextrin polymers in combination with sugars provide enhanced delivery of nucleic acids, particularly eucaryotic expression vectors, demonstrate enhanced delivery of nucleic acids to cells in vivo. The present invention also provides methods of treatment in combination with such formulations.

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD

(1 CITINGS)

AB The present invention provides formulations and methods to enhance the delivery of nucleic acids to cells. Formulations comprising dextrin polymers in combination with sugars provide enhanced delivery of nucleic acids, particularly eucaryotic expression vectors, demonstrate enhanced delivery of nucleic acids to cells in vivo. The present invention also provides methods of treatment in combination with such formulations.

IT Polymerization

(degree of; nucleic acid delivery)

IT Antitumor agents

Gene therapy

Human

Molecular weight distribution

Osmolarity

Retroviral vectors

(nucleic acid delivery)

IT 57-50-1, Sucrose, biological studies 9004-53-9, Dextrin

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(nucleic acid delivery)

L55 ANSWER 10 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:196591 HCAPLUS

DOCUMENT NUMBER: 136:356702

TITLE: Characterisation of fractions obtained by
isoamylolysis and ion-exchange chromatography of
cationic waxy maize starch

AUTHOR(S): Manelius, Robin; Maaheimo, Hannu; Nurmi, Kari;
Bertoft, Eric

CORPORATE SOURCE: Department of Biochemistry and Pharmacy, Abo Akademi
University, BioCity, FIN-20521, Finland

SOURCE: Starch/Staerke (2002), 54(2), 58-65

CODEN: STARDD; ISSN: 0038-9056

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Isoamylase hydrolyzates of wet- (WC) and dry-cationized (DC) waxy maize starch were fractionated by ion-exchange chromatog. on CM-Sepharose into an unbound and four bound fractions. The amt. of bound dextrans was higher in the WC than in the DC sample. The fractions were characterized by gel-permeation chromatog. and proton-NMR spectroscopy. The unbound fraction from the WC sample consisted mainly of linear chains formed from amylopectin. The dextrans in the bound fractions contained increased amts., from 1.2-7.9, of cationic substituents per mol. and the degree of polymn . increased with the d. of substituents. Dextrans weakly bound to CM-Sepharose had a linear structure, whereas more tightly bound fractions were mixts. of linear and branched dextrans. In the latter, the debranching was incomplete because of sterical hindrance by substituents at or close to the branch points. Most of the dextrans were partly hydrolyzed by .beta.-amylase, but the more highly substituted fractions possessed also a population of .beta.-amylase-resistant dextrans, suggesting substituents at the nonreducing ends.

OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD

(7 CITINGS)

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Characterisation of fractions obtained by isoamylolysis and ion-exchange chromatography of cationic waxy maize starch

AB Isoamylase hydrolyzates of wet- (WC) and dry-cationized (DC) waxy maize starch were fractionated by ion-exchange chromatog. on CM-Sepharose into an unbound and four bound fractions. The amt. of bound dextrans was higher in the WC than in the DC sample. The fractions were characterized by gel-permeation chromatog. and proton-NMR spectroscopy. The unbound fraction from the WC sample consisted mainly of linear chains formed from amylopectin. The dextrans in the bound fractions contained increased amts., from 1.2-7.9, of cationic substituents per mol. and the degree of polymn . increased with the d. of substituents. Dextrans weakly bound to CM-Sepharose had a linear structure, whereas more tightly bound fractions were mixts. of linear and branched dextrans. In the latter, the debranching was incomplete because of sterical hindrance by substituents at or close to the branch points. Most of the dextrans were partly hydrolyzed by .beta.-amylase, but the more highly substituted fractions possessed also a population of .beta.-amylase-resistant dextrans, suggesting substituents at the nonreducing ends.

ST isoamylolysis ion exchange chromatog cationic waxy maize starch; dextrin isoamylase amylopectin hydrolyzate

- IT Hydrolysis
(enzymic; characterization of fractions obtained by isoamylolysis and ion-exchange chromatog. of cationic waxy maize starch)
- IT Molecular weight distribution
(of isoamylase hydrolyzates of cationic waxy maize starch)
- IT 9037-22-3D, Waxy maize starch, cationized
RL: BCP (Biochemical process); BIOL (Biological study); PROC (Process)
(characterization of fractions obtained by isoamylolysis and ion-exchange chromatog. of cationic waxy maize starch)
- IT 9067-73-6, Isoamylase
RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
(characterization of fractions obtained by isoamylolysis and ion-exchange chromatog. of cationic waxy maize starch)
- IT 9004-53-9P, Dextrin
RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(characterization of fractions obtained by isoamylolysis and ion-exchange chromatog. of cationic waxy maize starch)
- IT 9000-91-3, .beta.-Amylase
RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
(hydrolysis of dextrans from cationized waxy corn starch isoamylolysis by)

L55 ANSWER 11 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:100187 HCAPLUS

DOCUMENT NUMBER: 136:182841

TITLE: Effect of extrusion cooking on molecular parameters of corn starch

AUTHOR(S): Brummer, Thomas; Meuser, Friedrich; Van Lengerich, Bernhard; Niemann, Claudia

CORPORATE SOURCE: Buhler, Uzwil, Switz.

SOURCE: Starch/Staerke (2002), 54(1), 1-8

CODEN: STARDD; ISSN: 0038-9056

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB By using a systems anal. model (SAM) and a fuzzy logic control software (fuzzy CIM) extrusion expts. were designed, that enabled a differentiation of the influence of the thermal energy input, expressed by the product temp. (PT), and the influence of the specific mech. energy input (SME) on the mol. structure of extruded starch. The chromatog. examn. of the mol. changes in the starch clearly revealed the influence of the extrusion cooking conditions on mol. degrdn. The mol. size of extruded starch, expressed as the wt. av. of the mol.

wt. (-Mw), decreased exponentially when SME increased. In the range of 110-180.degree.C, PT had no significant influence on -Mw so that the obsd. redn. of -Mw was primarily dependent on the increase in SME. By contrast, the polydispersity depended both on PT and SME. The influence of PT on the polydispersity was of minor significance up to 160.degree.C, increasing more steeply at higher temps. PT increase above 180.degree.C resulted in increasing reducing power of the extruded starch, whereas SME had almost no effect on reducing power. Only at a PT of more than 180.degree.C small amts. of short chain mols. with a degree of polymn. (DP) smaller than 6 could be detd.

OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS

RECORD (14 CITINGS)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Effect of extrusion cooking on molecular parameters of corn starch

AB By using a systems anal. model (SAM) and a fuzzy logic control software (fuzzy CIM) extrusion expts. were designed, that enabled a differentiation of the influence of the thermal energy input, expressed by the product temp. (PT), and the influence of the specific mech. energy input (SME) on the mol. structure of extruded starch. The chromatog. examn. of the mol. changes in the starch clearly revealed the influence of the extrusion cooking conditions on mol. degrdn. The mol. size of extruded starch, expressed as the wt. av. of the mol. wt. (-Mw), decreased exponentially when SME increased. In the range of 110-180.degree.C, PT had no significant influence on -Mw so that the obsd. redn. of -Mw was primarily dependent on the increase in SME. By contrast, the polydispersity depended both on PT and SME. The influence of PT on the polydispersity was of minor significance up to 160.degree.C, increasing more steeply at higher temps. PT increase above 180.degree.C resulted in increasing reducing power of the extruded starch, whereas SME had almost no effect on reducing power. Only at a PT of more than 180.degree.C small amts. of short chain mols. with a degree of polymn. (DP) smaller than 6 could be detd.

ST extrusion cooking corn starch mol structure

IT Molecular structure

(extrusion cooking effects on mol. parameters of corn starch)

IT Molecular weight

Thermal decomposition

Zea mays

(extrusion cooking effects on mol. parameters of corn starch and enzymic degrdn.)

IT Cooking

(extrusion; extrusion cooking effects on mol. parameters of corn starch)

IT 9005-25-8, Starch, biological studies

RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PRP (Properties); BIOL (Biological study); PROC (Process); USES (Uses)

(extrusion cooking effects on mol. parameters of corn starch)

IT 9075-68-7, Pullulanase

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(extrusion cooking effects on mol. parameters of corn starch and enzymic degrdn.)

L55 ANSWER 12 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:629187 HCAPLUS

DOCUMENT NUMBER: 136:6707

TITLE: Aliphatic polyester-based biodegradable materials: new amphiphilic graft copolymers

AUTHOR(S): Rutot, D.; Duquesne, E.; Ydens, I.; Degee, P.; Dubois, P.

CORPORATE SOURCE: Laboratory of Polymeric and Composite Materials, University of Mons-Hainaut, Mons, B-7000, Belg.

SOURCE: Polymer Degradation and Stability (2001), 73(3), 561-566

CODEN: PDSTDW; ISSN: 0141-3910

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Biodegradable brush-like amphiphilic graft copolymers were synthesized by covalently grafting poly(ϵ -caprolactone) PCL sequences onto a natural and mainly linear α -(1-6) exo-polysaccharide backbone, i.e. dextran. A three-step procedure is proposed to control the synthesis which consists in the reversible protection of the hydroxyl groups of the polysaccharide backbone by silylation, followed by the ring-opening polymn. of ϵ -caprolactone initiated by the remaining free hydroxyl groups of the partially silylated dextran after adequate activation into Al alkoxide active species. The third and final step involves the deprotection of the polysaccharide hydroxyl groups under very mild conditions. The high efficiency of grafting and the control over the graft mol. wt. and mol. wt. distribution rely upon the well-known "living" character of the coordination-insertion mechanism of the ring-opening polymn. that is initiated by aluminum alkoxides. Poly(ϵ -caprolactone)-grafted dextran copolymers with precise compn. and well controlled no. and length of PCL grafts were incorporated into PCL/granular corn starch composites by melt kneading at 130 $^{\circ}$ C. When located at the filler/matrix interface, the

copolymers proved to be very efficient compatibilizers, enhancing the interfacial adhesion, and accordingly the mech. properties of the composite materials as evidenced by tensile testing. To ensure the migration of the amphiphilic graft copolymer at the starch/PCL interface, it is better to first ppt. it onto the filler surface or to blend it with the starch granules before melt blending with the polyester matrix.

OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS

RECORD (27 CITINGS)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Biodegradable brush-like amphiphilic graft copolymers were synthesized by covalently grafting poly(ϵ -caprolactone) PCL sequences onto a natural and mainly linear α -(1-6) exo-polysaccharide backbone, i.e. dextran. A three-step procedure is proposed to control the synthesis which consists in the reversible protection of the hydroxyl groups of the polysaccharide backbone by silylation, followed by the ring-opening polymn. of ϵ -caprolactone initiated by the remaining free hydroxyl groups of the partially silylated dextran after adequate activation into Al alkoxide active species. The third and final step involves the deprotection of the polysaccharide hydroxyl groups under very mild conditions. The high efficiency of grafting and the control over the graft mol. wt. and mol. wt. distribution rely upon the well-known "living" character of the coordination-insertion mechanism of the ring-opening polymn. that is initiated by aluminum alkoxides.

Poly(ϵ -caprolactone)-grafted dextran copolymers with precise compn. and well controlled no. and length of PCL grafts were incorporated into PCL/granular corn starch composites by melt kneading at 130 $^{\circ}$ C. When located at the filler/matrix interface, the copolymers proved to be very efficient compatibilizers, enhancing the interfacial adhesion, and accordingly the mech. properties of the composite materials as evidenced by tensile testing. To ensure the migration of the amphiphilic graft copolymer at the starch/PCL interface, it is better to first ppt. it onto the filler surface or to blend it with the starch granules before melt blending with the polyester matrix.

ST dextran grafting polycaprolactone compatibilization polyester starch composite

IT Amphiphiles

Biodegradable materials

(dextran-grafted poly(ϵ -caprolactone) amphiphile synthesis and application as a compatibilizer for polycaprolactone-corn starch composites)

- IT Polyesters, preparation
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (graft; dextran-grafted poly(.epsilon.-caprolactone) amphiphile
 synthesis and application as a compatibilizer for polycaprolactone-corn
 starch composites)
- IT Adhesion, physical
 (interfacial, binder-filler; in polycaprolactone-corn starch
 composites contg. dextran-grafted poly(.epsilon.-caprolactone)
 compatibilizer)
- IT Elongation, mechanical
 Young's modulus
 (of polycaprolactone-corn starch composites contg.
 dextran-grafted poly(.epsilon.-caprolactone) compatibilizer)
- IT Polymerization
 (ring-opening, graft; dextran-grafted poly(.epsilon.-caprolactone)
 amphiphile synthesis and application as a compatibilizer for
 polycaprolactone-corn starch composites)
- IT Tensile strength
 (ultimate; of polycaprolactone-corn starch composites contg.
 dextran-grafted poly(.epsilon.-caprolactone) compatibilizer)
- IT 298181-09-6P
 RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (dextran-grafted poly(.epsilon.-caprolactone) amphiphile synthesis and
 application as a compatibilizer for polycaprolactone-corn
 starch composites)
- IT 9005-25-8, Corn starch, properties 24980-41-4,
 Poly(.epsilon.-caprolactone) 25248-42-4, Poly[oxy(1-oxo-1,6-hexanediyl)]
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (dextran-grafted poly(.epsilon.-caprolactone) amphiphile synthesis and
 application as a compatibilizer for polycaprolactone-corn
 starch composites)

L55 ANSWER 13 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:629092 HCAPLUS

DOCUMENT NUMBER: 136:17127

TITLE: Preparation and characterisation of linear
 dextrans and their use as substrates in in
 vitro studies of starch branching enzymes

AUTHOR(S): Andersson, L.; Rydberg, U.; Larsson, H.; Andersson,
 R.; Aman, P.

CORPORATE SOURCE: Department of Food Science, Swedish University of
 Agricultural Sciences, Uppsala, SE-750 07, Swed.

SOURCE: Carbohydrate Polymers (2001), Volume Date 2002, 47(1),
 53-58

CODEN: CAPOD8; ISSN: 0144-8617

PUBLISHER: Elsevier Science Ireland Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Essentially linear glucose chains with a relatively narrow mol. wt. range were produced by enzymic degrdn. of com. available retrograded starch. The retrograded maize starch was hydrolyzed by thermostable .alpha.-amylase and amyloglucosidase, which degraded the enzyme-available starch fraction. Gel permeation chromatog. (GPC) of the enzyme-resistant dextrans revealed a mol. wt. distribution with a peak max. at a degree of polymn. (dp) 50-60. Hydrolysis with .beta.-amylase gave a .beta.-amylolysis limit of 92%, suggesting that the dextrans were essentially linear. These linear dextrans were used as a substrate in a study of starch branching enzyme I from potato. The enzyme products were debranched and analyzed by HPAEC-PAD revealing two major populations of chains with a dp around 11 and 30, resp. GPC anal. of the same sample, before debranching, gave a peak with a max. similar to that of the original substrate. However, hydrolysis of .alpha.-(1,6)-linkages by isoamylase clearly shifted the elution peak towards lower mol. wts. and showing also that the majority of the glucose chains being longer than 60 glucose units had been used by the branching enzyme.

OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD

(7 CITINGS)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Preparation and characterisation of linear dextrans and their use as substrates in in vitro studies of starch branching enzymes

AB Essentially linear glucose chains with a relatively narrow mol. wt. range were produced by enzymic degrdn. of com. available retrograded starch. The retrograded maize starch was hydrolyzed by thermostable .alpha.-amylase and amyloglucosidase, which degraded the enzyme-available starch fraction. Gel permeation chromatog. (GPC) of the enzyme-resistant dextrans revealed a mol. wt. distribution with a peak max. at a degree of polymn. (dp) 50-60. Hydrolysis with .beta.-amylase gave a .beta.-amylolysis limit of 92%, suggesting that the dextrans were essentially linear. These linear dextrans were used as a substrate in a study of starch branching enzyme I from potato. The enzyme products were debranched and analyzed by HPAEC-PAD revealing two major populations of chains with a dp around 11 and 30, resp. GPC anal. of the same sample, before debranching, gave a peak with a max. similar to that of the original substrate. However,

hydrolysis of .alpha.-(1,6)-linkages by isoamylase clearly shifted the elution peak towards lower mol. wts. and showing also that the majority of the glucose chains being longer than 60 glucose units had been used by the branching enzyme.

ST linear dextrin prepn substrate starch branching enzyme

IT 9001-97-2, .alpha.-Glucan-branching glycosyltransferase

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(I; linear dextrin biosynthesis from retrograded maize starch by .alpha.-amylase and amyloglucosidase and use as substrate for potato starch-branching enzyme I)

IT 9000-90-2, .alpha.-Amylase 9032-08-0, Amyloglucosidase

RL: CAT (Catalyst use); USES (Uses)

(linear dextrin biosynthesis from retrograded maize starch by .alpha.-amylase and amyloglucosidase)

IT 9004-53-9P, Dextrin

RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

BIOL (Biological study); PREP (Preparation)

(linear dextrin biosynthesis from retrograded maize starch by .alpha.-amylase and amyloglucosidase and use as substrate for potato starch-branching enzyme I)

IT 9005-25-8, Starch, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(retrograded maize; linear dextrin biosynthesis from retrograded maize starch by .alpha.-amylase and amyloglucosidase)

L55 ANSWER 14 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1999:198561 HCAPLUS

DOCUMENT NUMBER: 130:267657

TITLE: Effect of temperature on the saccharide composition
obtained after .alpha.-amylolysis of starch

AUTHOR(S): Marchal, L. M.; Van de Laar, A. M. J.; Goetheer, E.;
Schimmelpennink, E. B.; Bergsma, J.; Beeftink, H. H.;
Tramper, J.

CORPORATE SOURCE: Food and Bioprocess Engineering Group, Department of
Food Technology, and Nutritional Sciences, Wageningen
Agricultural University, Wageningen, 6703 HD, Neth.

SOURCE: Biotechnology and Bioengineering (1999), 63(3),
344-355

CODEN: BIBIAU; ISSN: 0006-3592

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The hydrolysis of starch to low-mol.-wt.

products (normally characterized by their dextrose equiv. (DE), which is directly related to the no.-av. mol. mass) was studied at different temps.

Amylopectin potato starch, lacking amylose, was selected because of its low tendency towards retrogradation at lower temps. *Bacillus licheniformis* .alpha.-amylase was added to 10% [wt./wt.] gelatinized starch solns. The hydrolysis expts. were done at 50, 70, and 90.degree.C. Samples were taken at defined DE values and these were analyzed with respect to their saccharide compn. At the same DE the oligosaccharide compn. depended on the hydrolysis temp. This implies that at the same net no. of bonds hydrolyzed by the enzyme, the saccharide compn. was different. The hydrolysis temp. also influenced the initial overall mol.-wt. distribution.

Higher temps. led to a more homogeneous mol. wt. distribution. Similar effects were obsd. for .alpha.-amylases from other microbial sources such as *Bacillus amyloliquefaciens* and *Bacillus stearothermophilus*. Varying the pH (5.1, 6.2, and 7.6) at 70. degree.C did not significantly influence the saccharide compn. obtained during *B. licheniformis* .alpha.-amylase hydrolysis. The underlying mechanisms for *B. licheniformis* .alpha.-amylase were studied using pure linear oligosaccharides, ranging from maltotriose to maltoheptaose as substrates. Activation energies for the hydrolysis of individual oligosaccharides were calcd. from Arrhenius plots at 60, 70, 80, and 90.degree.C. Oligosaccharides with a degree of polymn. exceeding that of the substrate could be detected. The contribution of these oligosaccharides increased as the degree of polymn. of the substrate decreased and the temp. of hydrolysis increased. The product specificity decreased with increasing temp. of hydrolysis, which led to a more equal distribution between the possible products formed. Calcns. with the subsite map as detd. for the closely related .alpha.-amylase from *B. amyloliquefaciens* reconfirmed this finding of a decreased substrate specificity with increased temp. of hydrolysis.

OS.CITING REF COUNT: 25 THERE ARE 25 CAPLUS RECORDS THAT CITE THIS

RECORD (25 CITINGS)

REFERENCE COUNT: 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Effect of temperature on the saccharide composition obtained after .alpha.-amylolysis of starch

AB The hydrolysis of starch to low-mol.-wt. products (normally characterized by their dextrose equiv. (DE), which is directly related to the no.-av. mol. mass) was studied at different temps. Amylopectin potato starch, lacking amylose, was selected because of its low tendency towards retrogradation at lower temps. *Bacillus licheniformis* .alpha.-amylase was added to 10% [wt./wt.] gelatinized starch solns. The hydrolysis expts. were done at 50, 70, and 90.degree.C. Samples were taken at defined DE

values and these were analyzed with respect to their saccharide compn. At the same DE the oligosaccharide compn. depended on the hydrolysis temp. This implies that at the same net no. of bonds hydrolyzed by the enzyme, the saccharide compn. was different. The hydrolysis temp. also influenced the initial overall mol.-wt. distribution.

Higher temps. led to a more homogeneous mol. wt. distribution. Similar effects were obsd. for .alpha.-amylases from other microbial sources such as *Bacillus amyloliquefaciens* and *Bacillus stearothermophilus*. Varying the pH (5.1, 6.2, and 7.6) at 70.degree.C did not significantly influence the saccharide compn. obtained during *B. licheniformis* .alpha.-amylase hydrolysis. The underlying mechanisms for *B. licheniformis* .alpha.-amylase were studied using pure linear oligosaccharides, ranging from maltotriose to maltoheptaose as substrates. Activation energies for the hydrolysis of individual oligosaccharides were calcd. from Arrhenius plots at 60, 70, 80, and 90.degree.C. Oligosaccharides with a degree of polymn. exceeding that of the substrate could be detected. The contribution of these oligosaccharides increased as the degree of polymn. of the substrate decreased and the temp. of hydrolysis increased. The product specificity decreased with increasing temp. of hydrolysis, which led to a more equal distribution between the possible products formed. Calcns. with the subsite map as detd. for the closely related .alpha.-amylase from *B. amyloliquefaciens* reconfirmed this finding of a decreased substrate specificity with increased temp. of hydrolysis.

ST temp effect oligosaccharide compn amyloysis starch; *Bacillus* amylase oligosaccharide compn hydrolysis starch

IT Polysaccharides, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(effect of temp. on the saccharide compn. obtained after .alpha.-amylolysis of starch)

IT *Bacillus amyloliquefaciens*

Bacillus licheniformis

Bacillus stearothermophilus

(effect of temp. on the saccharide compn. obtained after .alpha.-amylolysis of starch using .alpha.-amylase from)

IT Transglycosylation

(in the effect of temp. on the saccharide compn. obtained after .alpha.-amylolysis of starch using .alpha.-amylase)

IT 9005-25-8D, Starch, amylopectin potato starch

, reactions 34612-38-9, Maltotetraose 34620-76-3, Maltopentaose 34620-77-4, Maltohexaose 34620-78-5, Maltoheptaose

RL: RCT (Reactant); RACT (Reactant or reagent)

(hydrolysis of in detg. the effect of temp. on the saccharide compn. obtained after .alpha.-amylolysis of starch)

IT 9000-90-2D, .alpha.-Amylase, *Bacillus licheniformis*, *B. amyloliquefaciens*,

or *B. stearothermophilus*

RL: CAT (Catalyst use); USES (Uses)

(hydrolysis using in detg. the effect of temp. on the saccharide compn.
obtained after .alpha.-amylolysis of starch)

L55 ANSWER 15 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1998:368108 HCAPLUS

DOCUMENT NUMBER: 129:42497

ORIGINAL REFERENCE NO.: 129:8901a,8904a

TITLE: Examination of number-average degree of
polymerization and molar-based distribution of
amylose by fluorescent labeling with
2-aminopyridine

AUTHOR(S): Hanashiro, Isao; Takeda, Yasuhito

CORPORATE SOURCE: United Graduate School of Agricultural Sciences,
Kagoshima University, Kagoshima, 890, Japan

SOURCE: Carbohydrate Research (1998), 306(3), 421-426

CODEN: CRBRAT; ISSN: 0008-6215

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Suitable conditions for the fluorescent labeling of the reducing residue
of amylose (I) with 2-aminopyridine were examd. I of
.ltoreq.38.5 nmol was labeled with a const. labeling efficiency. The same
efficiencies were obtained for I samples having a no.-av. d.p. (dpn) of
521-4400. The anal. of labeled I on size-exclusion HPLC with refractive
index and fluorescence detection enabled the detn. of dpn and d.p.
distribution on a molar basis. The anal. of 8 I specimens from 7
botanical sources, i.e., potato, sweet potato, barley, wheat, indica rice,
japonica rice, and maize, gave dpn values in good agreement with those
detd. by a conventional colorimetric method. The molar-based
distributions of these I samples were characteristic of botanical source
and revealed the presence of several mol. species with different d.p. not
detectable in the distribution on a wt. basis. Small I samples with a
d.p. <103 were predominant in the cereals, whereas I samples with a d.p.
>103 were predominant in the tubers, suggesting a difference in the
biosynthetic process detg. the d.p. distribution of I between cereals and
tubers.

OS.CITING REF COUNT: 24 THERE ARE 24 CAPLUS RECORDS THAT CITE
THIS

RECORD (24 CITINGS)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES
AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Examination of number-average degree of polymerization
and molar-based distribution of amylose by fluorescent labeling

with 2-aminopyridine

AB Suitable conditions for the fluorescent labeling of the reducing residue of amylose (I) with 2-aminopyridine were examd. I of .ltoreq.38.5 nmol was labeled with a const. labeling efficiency. The same efficiencies were obtained for I samples having a no.-av. d.p. (dpn) of 521-4400. The anal. of labeled I on size-exclusion HPLC with refractive index and fluorescence detection enabled the detn. of dpn and d.p. distribution on a molar basis. The anal. of 8 I specimens from 7 botanical sources, i.e., potato, sweet potato, barley, wheat, indica rice, japonica rice, and maize, gave dpn values in good agreement with those detd. by a conventional colorimetric method. The molar-based distributions of these I samples were characteristic of botanical source and revealed the presence of several mol. species with different d.p. not detectable in the distribution on a wt. basis. Small I samples with a d.p. <103 were predominant in the cereals, whereas I samples with a d.p. >103 were predominant in the tubers, suggesting a difference in the biosynthetic process detg. the d.p. distribution of I between cereals and tubers.

ST amylose mol wt distribution
fluorescent labeling; aminopyridine fluorescent labeling amylose
mol wt

IT Fluorescent indicators
Molecular weight distribution
(mol. wt distribution detn. of
amylose by fluorescent labeling with 2-aminopyridine)

IT 504-29-0, 2-Aminopyridine
RL: NUU (Other use, unclassified); USES (Uses)
(mol. wt distribution detn. of
amylose by fluorescent labeling with 2-aminopyridine)

IT 9005-82-7, Amylose
RL: PRP (Properties)
(mol. wt distribution detn. of
amylose by fluorescent labeling with 2-aminopyridine)

L55 ANSWER 16 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1991:647159 HCAPLUS

DOCUMENT NUMBER: 115:247159

ORIGINAL REFERENCE NO.: 115:41817a,41820a

TITLE: Use of multidetection for chromatographic
characterization of dextrans and
starch

AUTHOR(S): Heyraud, A.; Rinaudo, M.

CORPORATE SOURCE: Cent. Rech. Macromol. Veg., Cent. Natl. Rech. Sci.,
Grenoble, 38041, Fr.

SOURCE: ACS Symposium Series (1991), 458(Biotechnol.
Amylodextrin Oligosaccharides), 171-88

CODEN: ACSMC8; ISSN: 0097-6156

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Optical rotation and refractometric detectors were combined to characterize a series of dextrans by gel permeation chromatog. and high performance liq. chromatog. (HPLC). Gel permeation fractionates according to the hydrodynamic vol. when adsorption is avoided, and for this reason separates isomaltodextrans from linear maltodextrans. Sp. rotation power [α .] is directly obtained and confirms the chem. structure. Elution of cyclodextrans is also tested and discussed. HPLC reverse phase chromatog. separates the anomers as shown by optical rotation and allows good resolu. in the range of low degree of polymn. Light scattering and refractometric detectors were used to analyze starch with different amylose contents. Fractionations were also performed and iodine complexation tested in relation with the mol. structure. Gel permeation chromatog. in DMSO was used to det. the mol. wt. distribution of different starch samples without any calibration.

OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD

(3 CITINGS)

TI Use of multidetection for chromatographic characterization of dextrans and starch

AB Optical rotation and refractometric detectors were combined to characterize a series of dextrans by gel permeation chromatog. and high performance liq. chromatog. (HPLC). Gel permeation fractionates according to the hydrodynamic vol. when adsorption is avoided, and for this reason separates isomaltodextrans from linear maltodextrans. Sp. rotation power [α .] is directly obtained and confirms the chem. structure. Elution of cyclodextrans is also tested and discussed. HPLC reverse phase chromatog. separates the anomers as shown by optical rotation and allows good resolu. in the range of low degree of polymn. Light scattering and refractometric detectors were used to analyze starch with different amylose contents. Fractionations were also performed and iodine complexation tested in relation with the mol. structure. Gel permeation chromatog. in DMSO was used to det. the mol. wt. distribution of different starch samples without any calibration.

ST dextrin gel permeation chromatog HPLC; optical rotation detection dextrin chromatog; refractometry detection dextrin chromatog; gel permeation chromatog dextrin starch; cyclodextrin gel permeation chromatog HPLC; anomer dextrin sepn HPLC; starch analysis light scattering refractometry; iodine complexation starch structure; mol wt starch gel permeation chromatog; liq chromatog dextrin

- IT Polarimetry
Refractive index and Optical refraction
(in detection of dextrans for chromatog.)
- IT Molecular structure-property relationship
(iodine complexation, of starches)
- IT Chromatography, gel
(of dextrans and starches)
- IT Molecular weight
(of starch, gel permeation chromatog. and detn. of
distribution of)
- IT Chromatography, column and liquid
(high-performance, of dextrans)
- IT Spectrochemical analysis
(light-scattering, for detection of starches)
- IT 9005-25-8, Starch, analysis
RL: ANST (Analytical study)
(chem. and structural anal. and detn. of mol. wt.
distribution of, using light-scattering and refractometric
detection and gel-permeation chromatog. and iodine complexation)
- IT 7553-56-2, Iodine, uses and miscellaneous
RL: ANST (Analytical study); USES (Uses)
(in structural anal. of starch)

L55 ANSWER 17 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1986:441146 HCAPLUS

DOCUMENT NUMBER: 105:41146

ORIGINAL REFERENCE NO.: 105:6817a,6820a

TITLE: A gel filtration study on the action of barley
.alpha.-amylase isoenzymes on granular starch

AUTHOR(S): Bertoft, E.; Kulp, S. E.

CORPORATE SOURCE: Dep. Biochem. Pharm., Aabo Akad., Tusku, SF-20500,
Finland

SOURCE: Journal of the Institute of Brewing (1986), 92(1),
69-72

CODEN: JINBAL; ISSN: 0368-2587

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Small starch [9005-25-8] granules are hydrolyzed better than
large granules by barley .alpha.-amylase [9000-90-2] isoenzymes. The
major isoenzyme in barley is less active against both types of granules
than the minor isoenzyme. Mol. wt.
distribution anal. of the hydrolyzates show that the action
pattern of the 2 enzymes is almost identical. Though minor differences in
the intermediate products are obtained, the major product from both
starches is dextrin [9004-53-9] with a degree
of polymn. of 6-8.

OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD

(8 CITINGS)

TI A gel filtration study on the action of barley .alpha.-amylase isoenzymes on granular starch

AB Small starch [9005-25-8] granules are hydrolyzed better than large granules by barley .alpha.-amylase [9000-90-2] isoenzymes. The major isoenzyme in barley is less active against both types of granules than the minor isoenzyme. Mol. wt. distribution anal. of the hydrolyzates show that the action pattern of the 2 enzymes is almost identical. Though minor differences in the intermediate products are obtained, the major product from both starches is dextrin [9004-53-9] with a degree of polymn. of 6-8.

ST barley amylase isoenzyme starch degrdn

IT Barley

(.alpha.-amylase isoenzymes of, starch hydrolysis by)

IT 9000-90-2

RL: BIOL (Biological study)

(isoenzymes, of barley, starch hydrolysis by)

L55 ANSWER 18 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1984:586861 HCAPLUS

DOCUMENT NUMBER: 101:186861

ORIGINAL REFERENCE NO.: 101:28225a,28228a

TITLE: A kinetic study of the hydrolysis of amylose by glucoamylase

AUTHOR(S): Okumura, Koichi; Suga, Kenichi

CORPORATE SOURCE: Dep. Ferment. Technol., Osaka Univ., Suita, 565, Japan

SOURCE: Kagaku Kogaku Ronbunshu (1984), 10(3), 315-22

CODEN: KKRBAW; ISSN: 0386-216X

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB The dependence of rate parameters on d.p. for amyloses of d.p. 2-10 were studied. An empirical equation to calc. rate parameters for amyloses of d.p. 4-10 is presented, based on the results obtained. This empirical equation was also applicable to the hydrolysis of amyloses of d.p. 11-40, because exptl. rate parameters were in good agreement with those calcd. from the empirical equation for the hydrolysis of 3 kinds of amylose of d.p. >11. The numerical solns. of the rate equations, in which parameters were calcd. from the empirical equations, were in good agreement with the exptl. data of conversion and mol. wt. distribution in the degrdn. of amyloses of av. d.p. 17.

TI A kinetic study of the hydrolysis of amylose by glucoamylase

AB The dependence of rate parameters on d.p. for amyloses of d.p.

2-10 were studied. An empirical equation to calc. rate parameters for amyloses of d.p. 4-10 is presented, based on the results obtained. This empirical equation was also applicable to the hydrolysis of amyloses of d.p. 11-40, because exptl. rate parameters were in good agreement with those calcd. from the empirical equation for the hydrolysis of 3 kinds of amylose of d.p. >11. The numerical solns. of the rate equations, in which parameters were calcd. from the empirical equations, were in good agreement with the exptl. data of conversion and mol. wt. distribution in the degrdn. of amyloses of av. d.p. 17.

ST amylose degree polymn glucoamylase

IT Algorithm

(for reaction kinetics of glucoamylase with amylose of varying d.p.)

IT 9032-08-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with amylose, kinetics of, amylose d.p. in relation to)

L55 ANSWER 19 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1976:31329 HCAPLUS

DOCUMENT NUMBER: 84:31329

ORIGINAL REFERENCE NO.: 84:5137a,5140a

TITLE: Changes in molecular weight
parameters of starch and amylose
on hydrolysis

AUTHOR(S): Bendetskii, K. M.; Yarovenko, V. L.

CORPORATE SOURCE: All-Union Res. Inst. Ferment. Prod., Moscow, USSR

SOURCE: Bioorganicheskaya Khimiya (1975), 1(6), 808-15

CODEN: BIKHD7; ISSN: 0132-3423

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB By gel filtration on Sephadex, the mol. wt.

distribution of potato-sol. starch approximated the most probable wt. distribution (MPD). The products of starch degrdn. by H₂SO₄ and those of amylose treatment with *Aspergillus batatae* .gamma.-amylase resembled the parent polysaccharides in their MPD and viscosity dependence on the degree of polymn. Based on the obsd. relationship between viscosity and mol. wts., a statistical coil conformation was proposed for starch and amylose in alk. soln.

TI Changes in molecular weight parameters of
starch and amylose on hydrolysis

AB By gel filtration on Sephadex, the mol. wt.

distribution of potato-sol. starch approximated the most probable wt. distribution (MPD). The products of starch degrdn.

by H₂SO₄ and those of amylose treatment with *Aspergillus batatae*.
.gamma.-amylase resembled the parent polysaccharides in their MPD and
viscosity dependence on the degree of polymn. Based
on the obsd. relationship between viscosity and mol. wts
., a statistical coil conformation was proposed for starch and
amylose in alk. soln.

- ST hydrolysis starch mol wt
distribution; amylose hydrolysis mol
wt distribution
- IT Molecular weight
(distriution of, of hydrolyzed starch and fermented
amylose)
- IT Conformation and Conformers
(for starch and amylose in alkaline soln.,
statistical method for)
- IT 9005-25-8D, Starch, hydrolyzed 9005-82-7D, Amylose,
hydrolyzed
RL: RCT (Reactant); RACT (Reactant or reagent)
(mol. wt. distribution in alkaline
solns.)

L55 ANSWER 20 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1969:79343 HCAPLUS

DOCUMENT NUMBER: 70:79343

ORIGINAL REFERENCE NO.: 70:14857a,14860a

TITLE: Optical rotatory dispersion and circular dichroism of
an iodine complex of low-molecular-
weight amylose as a function of
polymerization degree. IV

AUTHOR(S): Pfannemueller, Beate; Mayerhoefer, H.; Schulz, Rolf C.

CORPORATE SOURCE: Univ. Freiburg/Br., Freiburg/Br., Fed. Rep. Ger.

SOURCE: Makromolekulare Chemie (1969), 121, 147-58

CODEN: MACEAK; ISSN: 0025-116X

DOCUMENT TYPE: Journal

LANGUAGE: German

AB Iodine complexes were prepd. from a series of enzymically synthesized
amyloses with a very narrow mol.-wt.
distribution (dispersity 1.001-1.002) and with d.p. between 25 and
480. The absorption spectra as well as the O.R.D. and circular dichroism
plots of these complexes were recorded. Cotton effects were observed at
365, 485, and in the range of 500-600 m.mu.. The wavelength of the
absorption max. .lambda.max. of greatest wavelength and of the positive
circular dichroism max. in the region 500-600 m.mu. may be described as
functions of d.p. by the equation $1/\lambda_{\text{max}} = (1/A) + (B/[A] + B/A \cdot \text{times. (d.p.)})$ where A and B are consts. Furthermore, the extinctions,
the base molar rotations, and dichroic absorptions were evaluated as a

function of d.p. The base molar rotations and the circular dichroism absorptions exhibited a max. between d.p. 70 and 100 and increased again at higher d.p. O.R.D. and circular dichroism increased on standing of the soln., whereas the locations of the absorption max. as well as the Cotton effect remained unchanged. Possible reasons for this behavior are discussed.

TI Optical rotatory dispersion and circular dichroism of an iodine complex of low-molecular-weight amylose as a function of polymerization degree. IV

AB Iodine complexes were prepd. from a series of enzymically synthesized amyloses with a very narrow mol.-wt. distribution (dispersity 1.001-1.002) and with d.p. between 25 and 480. The absorption spectra as well as the O.R.D. and circular dichroism plots of these complexes were recorded. Cotton effects were observed at 365, 485, and in the range of 500-600 m. μ .. The wavelength of the absorption max. λ_{max} of greatest wavelength and of the positive circular dichroism max. in the region 500-600 m. μ . may be described as functions of d.p. by the equation $1/\lambda_{max} = (1/A) + (B/[A + B/A \cdot (d.p.)])$ where A and B are consts. Furthermore, the extinctions, the base molar rotations, and dichroic absorptions were evaluated as a function of d.p. The base molar rotations and the circular dichroism absorptions exhibited a max. between d.p. 70 and 100 and increased again at higher d.p. O.R.D. and circular dichroism increased on standing of the soln., whereas the locations of the absorption max. as well as the Cotton effect remained unchanged. Possible reasons for this behavior are discussed.

ST ORD iodine complex amylose; amylose ORD iodine complex; complex amylose ORD iodine; iodine complex amylose ORD; circular dichroism complex amylose

IT Dichroism
(circular, of amylose-iodine complex, polymn. degree in relation to)

IT Molecular weights
(of amylose-iodine compd., optical properties in relation to)

IT Optical rotatory dispersion
(of amylose-iodine complex, polymn. degree in relation to)

IT Amyloses, compds. with iodine
Iodine, compd. with amylose
RL: PRP (Properties)
(optical properties of, polymn. degree in relation to)

L55 ANSWER 21 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1964:92087 HCAPLUS

DOCUMENT NUMBER: 60:92087

ORIGINAL REFERENCE NO.: 60:16144f-h,16145a-b

TITLE: Degradation of synthetic and natural amyloses
with .beta.-amylase and potato phosphorylase II

AUTHOR(S): Husemann, E.; Pfannemueller, B.

CORPORATE SOURCE: Univ. Freiburg i. Br., Germany

SOURCE: Makromolekulare Chemie (1963), 69, 74-96

CODEN: MACEAK; ISSN: 0025-116X

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB cf. CA 57, 1274a. The av. degree of polymerization (D.P.) of a natural amylose remained const. during treatment with .beta.-amylase. However, a synthetic amylose showed a steady fall in D.P. Hitherto these observations have been ascribed to a single-chain and a multi-chain mechanism, resp. The importance of assocn. on this difference in behavior was studied by treating 1% solns. of synthetic amyloses of P.eta. 1230 and 800 with .beta.-amylase. Light-scattering measurements indicated considerable assocn. in such solns. The av. D.P. in both cases fell continuously. Since natural amyloses exhibit some degree of assocn., it was thus considered that this factor was not important. To examine the influence of polydispersity, a natural amylose of P.eta. 2600, Pw/Pn 1.4-1.5 was prepd. by 3 fractionations with EtOH from Me₂SO. On treatment with .beta.-amylase, the av. D.P. remained const. until about 53% degradation had been reached, and subsequently started to fall. A nonfractionated natural amylose P.eta. 2340, Pw/Pn 2.0 under similar conditions first showed a small increase in av. D.P. followed by a fall. Very similar results were obtained with a synthetic amylose of comparable av. D.P. and with Pw/Pn 2.04. A smaller initial rise was obtained with a much more uniform amylose fraction P.eta. 4000, Pw/Pn 1.26. The mol. wt. distribution of a synthetic amylose of high polydispersity was examd. during the treatment with .beta.-amylase at 0, 41, 62, and 85% decompn. Although the distributions at each stage were similar, a fall in the proportion of lower- and middle chain lengths was discernible. It was suspected that the rate of degradation depended on the chain length. This was established by treating a mixt. of 4 amyloses of D.P. 4000, 2730, 1290, and 840, resp., with .beta.-amylase. The av. D.P. remained const. and then rose markedly. Examn. of the individual components showed that only degradation of the 2 lower mol. wt. components occurred. After 80% degradation only the 2 higher mol. wt. components remained. A similar expt. conducted with potato phosphorylase using a mixt. of synthetic amyloses P.eta. 2060 and 3700 showed also a preferential degradation of the lower component although this resulted in a gradual rise in the av. D.P. The observed av. D.P. of any given amylose during degradation with .beta.-amylase or potato phosphorylase depends on its initial mol

. wt. distribution. Further, all amyloses are degraded by a multi-chain mechanism with the rate of degradation increasing with decreasing chain length. The substrates were prepd. as described earlier (loc. cit.). The incubations were carried out in 0.2M acetate buffer after pptg. the amylose 3 times from H₂O-BuOH. The mol. wt. distribution was calcd. from viscosity measurements on the amylose fraction in 0.5N NaOH and the amylose tricarbanilate in dioxane.

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD

(2 CITINGS)

TI Degradation of synthetic and natural amyloses with .beta.-amylase and potato phosphorylase II

AB cf. CA 57, 1274a. The av. degree of polymerization (D.P.) of a natural amylose remained const. during treatment with .beta.-amylase. However, a synthetic amylose showed a steady fall in D.P. Hitherto these observations have been ascribed to a single-chain and a multi-chain mechanism, resp. The importance of assocn. on this difference in behavior was studied by treating 1% solns. of synthetic amyloses of P.eta. 1230 and 800 with .beta.-amylase. Light-scattering measurements indicated considerable assocn. in such solns. The av. D.P. in both cases fell continuously. Since natural amyloses exhibit some degree of assocn., it was thus considered that this factor was not important. To examine the influence of polydispersity, a natural amylose of P.eta. 2600, Pw/Pn 1.4-1.5 was prepd. by 3 fractionations with EtOH from Me₂SO. On treatment with .beta.-amylase, the av. D.P. remained const. until about 53% degradation had been reached, and subsequently started to fall. A nonfractionated natural amylose P.eta. 2340, Pw/Pn 2.0 under similar conditions first showed a small increase in av. D.P. followed by a fall. Very similar results were obtained with a synthetic amylose of comparable av. D.P. and with Pw/Pn 2.04. A smaller initial rise was obtained with a much more uniform amylose fraction P.eta. 4000, Pw/Pn 1.26. The mol. wt. distribution of a synthetic amylose of high polydispersity was examd. during the treatment with .beta.-amylase at 0, 41, 62, and 85% decompn. Although the distributions at each stage were similar, a fall in the proportion of lower- and middle chain lengths was discernible. It was suspected that the rate of degradation depended on the chain length. This was established by treating a mixt. of 4 amyloses of D.P. 4000, 2730, 1290, and 840, resp., with .beta.-amylase. The av. D.P. remained const. and then rose markedly. Examn. of the individual components showed that only degradation of the 2 lower mol. wt. components occurred. After 80% degradation only the 2 higher mol. wt. components remained. A similar expt. conducted with potato phosphorylase using a mixt. of synthetic amyloses P.eta.

2060 and 3700 showed also a preferential degradation of the lower component although this resulted in a gradual rise in the av. D.P. The observed av. D.P. of any given amylose during degradation with .beta.-amylase or potato phosphorylase depends on its initial mol. wt. distribution. Further, all amyloses are degraded by a multi-chain mechanism with the rate of degradation increasing with decreasing chain length. The substrates were prepd. as described earlier (loc. cit.). The incubations were carried out in 0.2M acetate buffer after pptg. the amylose 3 times from H₂O-BuOH. The mol. wt. distribution was calcd. from viscosity measurements on the amylose fraction in 0.5N NaOH and the amylose tricarbanilate in dioxane.

IT 9005-82-7, Amylose
(decompn., by .beta.-amylase and phosphorylase)
IT 9000-91-3, Amylase, .beta.-
(.beta.-, amylose decompn. by)

L55 ANSWER 22 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1963:483467 HCAPLUS

DOCUMENT NUMBER: 59:83467

ORIGINAL REFERENCE NO.: 59:15552a-b

TITLE: Mechanism of action of B-amylase and potato
phosphorylase

AUTHOR(S): Husemann, E.; Pfannemueller, B.

CORPORATE SOURCE: Univ. Freiburg i. Br., Germany

SOURCE: Makromolekulare Chemie (1962), 56, 237-8

CODEN: MACEAK; ISSN: 0025-116X

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB The influence of the polydispersity of amyloses on the action pattern of .beta.-amylase and phosphorylase has been studied. Uniform synthetic amylose degree of polymerization (DP) 12,500 ($P_w/P_n = 1.05$) was degraded by .alpha.-amylase to DP 2200 ($P_w/P_n = 2.04$). This product with a "most probable distribution" curve behaved as natural amylose, i.e. no decrease in the av. DP during the degradation with .beta.-amylase. By stepwise degradation of a mixt. of 4 uniform synthetic amyloses: $P_1 = 4040$, $P_2 = 2730$, $P_8 = 1290$, and $P_4 = 840$ ($P_w/P_n 1.48$) with .beta.-amylase and fractionation of the intermediate products, it is shown that an increase in the enzymic degradation rate with decreasing mol. wt. takes place. It is concluded that all amyloses are degraded by multichain action. The const. av. DP during the degradation of natural amylose is caused by the polydispersity of the substances and not by single chain action of the enzymes.

AB The influence of the polydispersity of amyloses on the

action pattern of .beta.-amylase and phosphorylase has been studied. Uniform synthetic amylose degree of polymerization (DP) 12,500 ($P_w/P_n = 1.05$) was degraded by .alpha.-amylase to DP 2200 ($P_w/P_n = 2.04$). This product with a "most probable distribution" curve behaved as natural amylose, i.e. no decrease in the av. DP during the degradation with .beta.-amylase. By stepwise degradation of a mixt. of 4 uniform synthetic amyloses: $P_1 = 4040$, $P_2 = 2730$, $P_8 = 1290$, and $P_4 = 840$ ($P_w/P_n 1.48$) with .beta.-amylase and fractionation of the intermediate products, it is shown that an increase in the enzymic degradation rate with decreasing mol. wt. takes place. It is concluded that all amyloses are degraded by multichain action. The const. av. DP during the degradation of natural amylose is caused by the polydispersity of the substances and not by single chain action of the enzymes.

IT 9005-82-7, Amylose

(decompn., by .beta.-amylase and phosphorylase)

L55 ANSWER 23 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1958:104687 HCAPLUS

DOCUMENT NUMBER: 52:104687

ORIGINAL REFERENCE NO.: 52:18568d-e

TITLE: Natural and synthetic amylose. VIII.

Molecular size and molecular weight
distribution of synthetic amylose

AUTHOR(S): Husemann, I. E.; Fritz, B.; Lippert, R.; Pfannemuller,
B.; Schupp, E.

CORPORATE SOURCE: Univ. Freiburg i. Br., Germany

SOURCE: Makromolekulare Chemie (1958), 26, 181-98

CODEN: MACEAK; ISSN: 0025-116X

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB cf. C.A. 52, 6204a. The retrogradation during the synthesis of natural and synthetic amyloses is not responsible for the differences in the polymerization degrees as shown by expts. in 15% formamide. The degree of polymerization was found to be nearly const. and the products very heterogeneous. The total no. of amylose mols. is 17 times as great as the no. of initiator mols., and higher-mol.-wt. amyloses are obtained when synthesizing at 45 and 50.degree.. If based on all facts, it is concluded that the differences depend on the presence of a hydrolyzing enzyme in the phosphorylase prepd. according to Hidy and Day (C.A. 40, 21656).

TI Natural and synthetic amylose. VIII. Molecular size and molecular weight distribution of synthetic amylose

AB cf. C.A. 52, 6204a. The retrogradation during the synthesis of natural and synthetic amyloses is not responsible for the differences in the polymerization degrees as shown by expts. in 15% formamide. The degree of polymerization was found to be nearly const. and the products very heterogeneous. The total no. of amylose mols. is 17 times as great as the no. of initiator mols., and higher-mol.-wt. amyloses are obtained when synthesizing at 45 and 50.degree.. If based on all facts, it is concluded that the differences depend on the presence of a hydrolyzing enzyme in the phosphorylase prepd. according to Hidy and Day (C.A. 40, 21656).

IT 9005-82-7, Amylose 9005-82-7, Amylose
(properties of synthetic)

L55 ANSWER 24 OF 24 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1951:45985 HCAPLUS

DOCUMENT NUMBER: 45:45985

ORIGINAL REFERENCE NO.: 45:7810f-g

TITLE: Fractionation of starch. VI. Fractionation
of amyloses

AUTHOR(S): Goodison, D.; Higginbotham, R. S.

CORPORATE SOURCE: Brit. Cotton Ind. Research Assoc., Manchester, UK

SOURCE: Journal of the Textile Institute (1951), 42, T249-73

CODEN: JTINA7; ISSN: 0040-5000

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB A general method for fractionation of amyloses is described, based on their fractional solubilities in H₂O satd. with butanol being functions of temp. and mol. size over a small temp. range. The rigidities of aq. gels of the fractions and the intrinsic viscosities and number-av. degrees of polymerization of their triacetates were detd. for sago and tapioca amyloses and compared with maize amylose and maize cryst. amylose. The relations between the values vary in a manner suggesting possible slight branching of the amyloses to different degrees. Soly.-temp. relations, I₂ absorptions of the fractions, mol. wt. distributions, and the heterogeneity of the fractions are fully discussed.

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD

(1 CITINGS)

TI Fractionation of starch. VI. Fractionation of amyloses

AB A general method for fractionation of amyloses is described, based on their fractional solubilities in H₂O satd. with butanol being functions of temp. and mol. size over a small temp. range. The rigidities of aq. gels of the fractions and the intrinsic viscosities and number-av.

degrees of polymerization of their triacetates were detd. for sago and tapioca amyloses and compared with maize amylose and maize cryst. amylose. The relations between the values vary in a manner suggesting possible slight branching of the amyloses to different degrees. Soly.-temp. relations, I₂ absorptions of the fractions, mol. wt. distributions, and the heterogeneity of the fractions are fully discussed.

IT 9005-82-7, Amylose
(fractionation and mol. wts. of)